

Serial No. 10/618,296

Attorney Docket No. 20T-041

REMARKS

In view of the comments below, Applicant respectfully requests that the Examiner reconsider the present application including rejected claims, as amended, and withdraw the outstanding claim rejections. Currently claims 40-59 are pending.

Claim Amendment

By this response Applicant has amended claim 40 to correct a clerical error. In particular, the term "an forward amplifier" in line 6 of claim 1 should read "a forward amplifier." Similarly, the term "an frequency division multiple access (FDMA) protocol" in line 3 of claim 48 should read "a frequency division multiple access (FDMA) protocol." Applicant has amended claims 40 and 48 to make these corrections.

Because these amendments are being made solely to correct clerical errors, and not in response to an art rejection, any narrowing amendments to the claims in the present response are not to be construed as a surrender of any subject matter between the original claims and the present claims; rather this is merely an attempt at providing one or more definitions of what the applicant believes to be suitable patent protection. The present claims provide the intended scope of protection that the applicant is seeking for this application. Therefore, no estoppel should be presumed, and the applicant's claims are intended to include a scope of protection under the Doctrine of Equivalents.

Claim Rejections 35 USC § 103

The Examiner has rejected claims 40-48 under 35 U.S.C. § 103(a) as being allegedly unpatentable over United States Published Patent Application No. 2004/0185775 A1 to Bell et al.

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("Bell") in view of United States Patent No. 6,381,228 to Prieto et al. ("Prieto"). Applicant respectfully traverses this rejection.

Claim 40 recites "a forward payload section including a forward processing module and a forward amplifier, the forward payload section for handling the analog payload," and "a return payload section including a return processing module having an arbitration processor and a return amplifier, the return payload section for handling the digital payload." These features are not disclosed or suggested in either of Bell or Prieto, alone or in combination.

The Examiner has asserted that Bell discloses a hybrid satellite (e.g., in the abstract, and paragraphs [0004], [0007], [0011], [0012], [0029]-[0034], [0041], [0048], [0055], and claim 20). However, a careful examination of these and other portions of Bell will show that this is not an accurate characterization of what Bell teaches and suggests.

In particular, Bell discloses "*an all-digital satellite payload*," that includes "both digital transponded and digital regenerative functions." Bell notes that by combining transponded and regenerative functions into a *common digital platform*, numerous efficiencies of scale are realized, and the overall efficiency and functionality of the satellite is dramatically improved. (See, e.g., Bell, paragraph [0010].) Thus, Bell does not disclose a hybrid analog/digital payload. Rather, it discloses an entirely digital payload.

The Examiner asserts that Bell discloses analog processing. But this is not accurate, as the term would be understood by one of ordinary skill in the art. The Examiner specifically cites paragraphs [0004], [0030], and [0055], as well as claim 20 as allegedly showing analog/digital circuitry function. Applicant will consider each of these cited sections in turn, by way of example.

Paragraph [0004] simply discloses that a satellite may include one or more "transponders", which are clusters containing one or more radio receivers, frequency translators

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and transmitters. It notes that these transponders are collectively referred to as "the payload" of the satellite. (See, e.g., Bell, paragraph [0004].) But it offers no disclosure or suggestion as to whether these transponders perform analog or digital operations.

Paragraph [0030] discloses that in operation, a number of input beams 204 are received via a suitable antenna. Each of these beams may be filtered to isolate an appropriate band of frequencies (i.e. "sub-bands" or "channels") to be amplified by a low noise amplifier (LNA) or other input amplifier 206 to improve the strength of the received signal. The amplified sub-band is then downconverted from the received frequency to a suitable intermediate frequency (IF) for digital processing. (See, e.g., Bell, paragraph [0030], and FIG. 2.)

This paragraph thus identifies digital processing, not analog processing. And although it does disclose the use of analog-to-digital converters (ADC) to sample incoming sub-bands, such operations are not the same as handling an analog payload, as recited in claim 40. Rather, the ADC simply converts an incoming analog signal for the satellite to a digital signal so that the all-digital satellite payload can perform digital processing.

One skilled in the art would understand that handling an analog payload does not include A/D or D/A conversion. Such operations are by their very nature related to digital payload handling. In analog payload handling there would be no need to convert a signal to digital format, or back again. And since this is the only even partly analog operation Bell discloses, it is deficient in showing the handling of an analog payload.

Paragraph [0055] discloses an embodiment in which even the A/D converters are eliminated. In particular, it notes that in another embodiment, the digital signal processing capabilities of payload 202 can be expanded to incorporate direct beam forming, essentially creating an all-digital satellite payload 800. Such embodiments typically do not require downconvert or output multiplexing capabilities, since the digital payload 202 is able to directly

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interoperate with phased array and/or other antennas to process uplink data and to form downlink beams ready for transmission. In such embodiments, digital payload 202 receives the analog baseband signals from the input amplifiers 206, and provides output signals to output amplifiers 802 in analog form. (See, e.g., Bell, paragraph [0055], and FIG. 8.) Thus, in this disclosed embodiment, there aren't even A/D or D/A converters, and the entire processing is performed digitally.

Claim 20 recites receiving a plurality of uplink beams and producing a plurality of downlink beams, the satellite comprising: an uplink antenna configured to receive the plurality of uplink beams; a downlink antenna configured to produce the plurality of downlink beams; an analog-to-digital (A/D) converter configured to convert the uplink beams to digital uplink equivalents; [a variety of elements to perform digital processing]; and a digital to analog (D/A) converter configured to convert digital output sub-bands to downlink beams transmitted by the downlink antenna. (See, e.g., Bell, claim 20.)

Thus, Bell shows in its claim 20, an all-digital payload in which incoming analog signals on the uplink are converted to digital signals, processed in the satellite as digital signals, and then converted back to analog signals for transmission along the downlink.

In all of these cited portions of Bell, as well as the non-cited portions of Bell, the only analog signals are those received by and transmitted from the disclosed satellite. All internal processing, aside from an initial A/D conversion and a final D/A conversion, are digital operations. Thus, Bell does not disclose a hybrid system in which a forward payload section handles an analog payload, and a return payload section handles a digital payload, as required by claim 40. Specifically, it does not disclose or suggest a forward payload section including a forward processing module and a forward amplifier, the forward payload section for handling the

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analog payload. Rather, it shows an all-digital satellite payload, that does not perform analog payload handling.

Prieto does not cure this deficiency. In particular, nothing in Prieto discloses or suggests a hybrid payload satellite including a forward payload section including a forward processing module and a forward amplifier, the forward payload section for handling the analog payload; and a return payload section including a return processing module having an arbitration processor and a return amplifier, the return payload section for handling the digital payload, as required by claim 40. Thus, none of Bell alone, Prieto alone, or Bell and Prieto in combination disclose or suggest all of the elements of a hybrid payload recited in claim 40.

Claims 41-48 depend variously from claim 40, and are allowable for at least the reasons given above for claim 40.

Therefore, based on at least the reasons given above, Applicant respectfully requests that the Examiner withdraw the rejection of claims 40-48 under 35 U.S.C. § 103(a) as being allegedly unpatentable over Bell in view of Prieto.

New Claims

By this response, Applicant has added new claims 49-59. No new matter has been added in these new claims. Applicant respectfully requests that the Examiner enter and consider these new claims.

Conclusion

Applicant respectfully submits that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicant does not concede that the cited prior art shows any of the elements recited in the claims. However, applicant has provided specific examples of elements in the claims that are clearly not present in the cited prior art.

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Applicant strongly emphasizes that one reviewing the prosecution history should not interpret any of the examples Applicant has described herein in connection with distinguishing over the prior art as limiting to those specific features in isolation. Rather, for the sake of simplicity, Applicant has provided examples of why the claims described above are distinguishable over the cited prior art.

In view of the foregoing, Applicant submits that this application is in condition for allowance. A timely notice to that effect is respectfully requested. If questions relating to patentability remain, the Examiner is invited to contact the undersigned by telephone.

Although it is not anticipated that any additional fees are due or payable, the Commissioner is hereby authorized to charge any fees that may be required to Deposit Account No. 50-1147.

Respectfully submitted,



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